

REMARKS

I. Overview

These remarks are set forth in response to the Non-Final Office Action. As this amendment has been timely filed within the three-month statutory period, neither an extension of time nor a fee is required. Presently, claims 1 through 19 are pending in the Patent Application. Claims 1, 9 and 12 are independent in nature. In the Non-Final Office Action, the Examiner has rejected claims 1 through 19 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,725,197 to Wupperman et al. (Wupperman). In response, the Applicants have amended claims 1, 9 and 12 to emphasize that the sub-string pattern of characters exclusively contain a sequence of characters appearing amongst all characters for the acceptable input for the field.

II. The Applicant's Invention

The Applicants have invented a method, system and apparatus for the speech disambiguation of strings in an interactive voice response (IVR) system. In the invention, one or more fields within an interface managed by the IVR system can be processed to identify a subset of input for the field which enjoys a higher likelihood of pattern recognition. Specifically, the string can be inspected to identify a subset consisting of numbers, letters or both which enjoys a higher likelihood of accurate speech recognition than other numeric characters, alphabetic characters, and alphanumeric characters in the string. Similarly, the string can be inspected to identify a pattern of numeric characters, alphabetic characters, and alphanumeric characters which are more

likely to be uniquely identified among a database of strings than other numeric characters, alphabetic characters, and alphanumeric characters.

Once a subset has been identified for the strings associated with the field, interacting users can be prompted to complete the field not by specification of the entire string associated with the field, but with a mere subset of the string associated with the field. As the subset will have been chosen to enhance both the likelihood of speech recognition and unique identification, the IVR system can more efficiently match the provided input to existing data for the field without requiring the use of exhaustive levels of prompting for complete string input. In this regard, the provided user input can be disambiguated from other possible matching data without subjecting the user to unnecessary prompts.

III. Amendments to the Claims

Applicants have amended claims 1, 9 and 12. Amended claims 1, 9 and 12 emphasize that the sub-string pattern of characters exclusively contains a sequence of characters appearing amongst all characters for the acceptable input for the field. Support for the Applicants' amendments can be found in paragraphs [0023] and [0025] of the originally filed specification. Thus, no new matter has been added by virtue of Applicants' amendments to claims 1, 9 and 12.

IV. Rejections Under 35 U.S.C. § 102(e)

A. Characterization of Wupperman

Wupperman relates to a method of automatic recognition of a partly spelled speech utterance. In Wupperman, after a partly spelled speech utterance has been entered, a speech recognition unit can determine a first recognition result for the whole speech utterance and individually recognized letters are sent to the user to acknowledge or reject. After a letter has been acknowledged, an associated linguistic speech model can be adapted and, after its adaptation, the linguistic speech model can determine the number of letters that can be allowed as followers of the acknowledged letters and assumes the correctness of letters already acknowledged. Thereafter, the speech recognition unit can determine a further recognition result for the speech utterance by means of the adapted linguistic speech model, from which result the next letter to be sent to the user is determined, so that the user can acknowledge the next letter.

B. Traversal of the Rejections on the Art

Of note, the Examiner refers to column 5, line 38 to column 6, line 6 of Wupperman in support of the proposition that Wupperman teaches an identification of "a sub-string pattern of characters within acceptable input for the field which is known to enjoy a high likelihood of recognition" as expressly recited in claims 1, 9 and 12. The entirety of the cited portion of Wupperman is reproduced herein for the convenience of the Examiner:

When the adapted network grammar in accordance with FIG. 2 is used as a linguistic speech model, the speech recognition unit 2 again carries out a speech recognition operation for the character vectors which are stored and derived from the originally entered spelled speech utterance "AACHEN", which in its turn leads to the recognition

result "AADAEM". After "A" was proposed to the user for the second letter and this recognition result was also acknowledged as correct by the user, again an adaptation of the linguistic speech model used i.e. of the network grammar is made while the database information is used. After the adaptation, there is a network extension to four nodes K0, K1, K2 and K3, which is represented in FIG. 3. In accordance with the sequence "AA" as acknowledged initial letters, they are assumed to be known, so that both between the nodes K0 and K1 and between the node K1 and the node K2 only one edge is assumed to which is assigned a state corresponding to the letter "A". In accordance with the respective database information the number of permissible letters for the third letter of the place name to be recognized now contains only the letters "C", "L", "R" or "S". The FIG. 3 shows respective edges between the two nodes K2 and K3, while for clarity again only one edge is drawn for the two neighboring letters "R" and "S". This adapted network contains no (constraining) information about the fourth and possibly further letters of the speech utterance to be recognized.

With the re-modified linguistic speech model (=network grammar), a further speech recognition operation is carried out by means of the speech recognition unit 2, for which again the stored character vectors of the originally detected spelled speech utterance "AACHEN" are started from. This time, however, an improved recognition result "AACHEM" is produced on the basis of the modified linguistic speech model, which result only slightly differs from the actual speech utterance.

As it will be recognized by reference to the bolded and underlined portions of the above citation, the result "AADAEM" is not a sub-set of the original utterance "AACHEN". To eliminate any possibility of continued confusion as to the meaning of the claimed word "sub-set", Applicants have amended claims 1, 9 and 12 to explicitly state that the sub-string pattern of characters exclusively contains a sequence of characters appearing amongst all characters for the acceptable input for the field. In Wupperman, however, AADAEM does not exclusively contain a sequence of characters appearing amongst all characters in AACHEN and in fact only "AA" and "E" of AADAEM can be found in AACHEN.

V. Conclusion

The Applicants respectfully request the withdrawal of the rejections under 35 U.S.C. § 102(e) owing to the amended claims and the foregoing remarks. The Applicants request that the Examiner call the undersigned if clarification is needed on any matter

within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

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